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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/701,307

11/04/2003

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EXAMINER

VAN ROY, TOD THOMAS

ART UNIT

PAPER NUMBER

2828

MAIL DATE

DELIVERY MODE

05/28/2010

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/701,307	<b>Applicant(s)</b> ASAI ET AL.	
	<b>Examiner</b> TOD T. VAN ROY	<b>Art Unit</b> 2828	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 15 March 2010.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1,2,4,5,8,9,11 and 12 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2,4,5,8,9,11 and 12 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                    | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)         | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Response to Amendment***

The Examiner acknowledges the amending of claims 1, 2, 8 and 9.

### ***Response to Arguments***

Applicant's arguments filed 03/15/2010 have been fully considered but they are not persuasive.

*The Applicant has argued that Yamada does not teach an electron hole transport layer, driving substrate, light emitting layer, and electron transport layer.*

The Examiner notes col.6 lines 37-42 which describes the use of the newly amended layers in the device of Yamada. Yamada states the electron transport layer can be separate from the emitting layer and is necessarily atop the emitting layer in order for the carriers to flow properly across the active region from the electron to the hole layer.

Additionally, Yamada uses the term "hole transport" layer while the claim states "electron hole transport" layer. The Examiner notes that these terms describe the same feature as a "hole" is a vacant electron location.

*The Applicant has also argued that Yamada does not teach an electron hole transport layer on the light emitting layer.*

The Examiner notes that this limitation is not found in the claims.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148

USPQ 459 (1966), that are applied for establishing a background for determining

obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1, 2, 4-5, 8-9, and 11-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamada et al. (US 7102282).

With respect to claim 1, Yamada teaches a light emitting device comprising a driving substrate (fig.19 #11), a resonator structure (fig.19 L) comprising a first electrode (fig.19 #12) on the driving substrate, an electron hole transport layer on the first driving substrate (col.6 lines 37-42 ), a light emitting layer (fig.19 #13c) on the electron hole transport layer, an electron transport layer on the light emitting layer (col.6 lines 37-42, see Response to Arguments above), a second electrode (fig.19 #15) on the electron transport layer; and a color filter disposed over the second electrode (fig.19 #20), wherein the first and second electrode both reflect light, the second electrode acts as a semi transparent reflection layer (inherent that both would not be 100% transparent and at least some portion of the light would be reflected and can therefor be called semi transparent), the resonator structure resonates light generated in the light emitting layer and is extracted from at least the second electrode side of the electrode, and the

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materials and thicknesses of the first and second electrodes are selected such that the first and second electrode both reflect outside light at substantially the same strength (col.7-8 lines 49-5 describe the first and second electrode materials (refractive index) and thicknesses are chosen such that the phase portion of the disclosed formula is satisfied; further, col.12 lines 48-64 describes that the cavity formed of #13, as well as the bounding electrodes, is of a composition such that external light is prevented from being reflected, meaning no reflection from either electrode). Yamada further emphasizes the reflectance of the outside light at the resonant wavelength is minimized (col.12 lines 56-64, transmittance very high) in the cavity (includes electrodes). Yamada does not specify the reflectance from the electrodes making up the cavity to be 20% or less. It would have been obvious to one of ordinary skill in the art at the time of the invention to adjust the electrode reflectance to 20% or less as Yamada makes clear that reflectance of outside light is of great importance to improving device operation (see also figs.20-22 for results of external light reflection reducing steps taken).

With respect to claim 2, Yamada teaches that of claim 1, and the use of the stated formula (abs.).

With respect to claims 4 and 5, Yamada teaches a semi-transparent reflection layer (fig.4 #14) is provided on the second end, and has an extinction coefficient of 0.5 or more and a refractive index of 1 or less (since is made of Mg/Ag alloy).

With respect to claims 8-9, Yamada further teaches multiple display devices (col.2 lines 44-51).

With respect to claims 11 and 12, Yamada teaches a semi-transparent reflection layer (fig.4 #14) is provided on the second end, and has an extinction coefficient of 0.5 or more and a refractive index of 1 or less (since is made of Mg/Ag alloy).

### ***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to TOD T. VAN ROY whose telephone number is (571)272-8447. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Minsun Harvey can be reached on (571)272-1835. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Tod T Van Roy/  
Examiner, Art Unit 2828